

uni-flo

**GRILLES
and
REGISTERS**

BARBER-COLMAN COMPANY

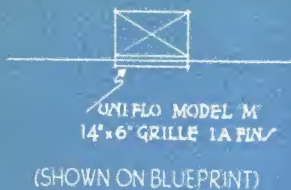
Rockford • Illinois • U.S.A.

ENGINEERED
AIR DISTRIBUTION
OUTLETS

featuring
DIFFUSION
DISTRIBUTION
DIRECTIONAL FLOW

and
ASPIRATION
AT HIGH *and* LOW
VELOCITIES

CATALOG NO. 3



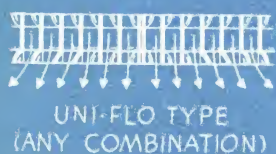
PERMISSIBLE TEMPERATURE DIFFERENTIAL (BELOW ROOM TEMPERATURE)



VELOCITY AT OUTLET (FEET PER MINUTE)



DIRECTIONAL FINS



uni-flo GRILLES & REGISTERS

IMPORTANT FUNCTIONAL UNITS

*for Effective Air Conditioning
and Ventilation*

A VITAL PART OF THE AIR DISTRIBUTION SYSTEM

UNI-FLO Grilles and Registers perform definite air distributing functions in the air conditioning or ventilating system in which they are used. Their type, shape, size, and position is planned by the designing engineer with the same kind of accurate foreknowledge on which he bases the selection of blowers, duct sizes, and other important parts of the system. They are not merely decorative closures for the stack heads; they serve precise, planned purposes.

LOWER AIR TEMPERATURES AND HIGHER VELOCITIES

In air conditioning work, the air should be introduced as cool as possible and at as high a velocity as possible in order to keep down the size of the ducts and outlets. The velocity must not be so high as to cause objectionable noise, nor should the combination of high velocity and low temperature be such as to cause excessive cooling in certain areas. In addition, the cooling air should be uniformly distributed throughout the entire space.

Former practice used air temperatures of only 5° to 10° below room temperature and low discharge velocities seldom over 500 feet per minute. Higher velocities were noisy and caused objectionable currents. Lower temperatures produced cold drafts.

With UNI-FLO Grilles it is now common practice to introduce air at temperatures 20° to 25° below room temperature and at velocities well over 1,000 feet per minute.

DIRECTIONAL FINS CONTROL AIR DISTRIBUTION

UNI-FLO Directional Fins enable the designing engineer to distribute the supply air wherever he wants it, in the desired quantity, and with economical outlet locations. Directional fins may be combined as desired, the proper arrangement depending upon the size and shape of the room, the position of the outlet, etc.

DIFFUSING EDGES CAUSE RAPID TEMPERING

The discharge edges of UNI-FLO fins are punched to form small projections which produce much minor turbulence; and smoke tests show a multitude of small eddies at the edges of the air stream. The cool air is thus rapidly mixed with the room air, raising the temperature and decreasing the velocity. Also, the contact area with the un-entrained warmer room air is increased, producing greater heat conduction and thus raising the air stream temperature without decreasing its velocity.

LOWER NOISE LEVEL

UNI-FLO Grilles and Registers are characterized by a minimum of "air whistle," or noise produced by the air passing through the grille. The thin fins and supporting members permit the use of discharge velocities of 1,000 feet per minute, and on many installations as high as 1,500 feet per minute, without objectionable noise.

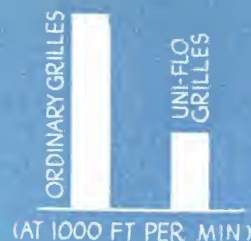
UNI-FLO GRILLES FOR EXTREMELY LONG "THROW"

Certain UNI-FLO Grilles are available that will project the air stream 40 to 60 feet or more permitting much more economical duct arrangements. That these longer "throws" are possible is partly due to the relatively high velocities that can be used without producing objectionable noise, and partly due to accurate directional control which keeps the cool air near the ceiling until it is well distributed over the room.

MEETING UP-TO-DATE NEEDS IN GRILLES AND REGISTERS

Whether the system be for summer cooling, ventilation, humidification, or year-round air conditioning, proper distribution of the supply air is now universally recognized as a factor of primary importance. UNI-FLO Grilles and Registers have been specifically and scientifically designed to meet these modern needs after consultation with many recognized experts in the field. A number of outstanding examples from the thousands of successful installations are listed on the back cover.

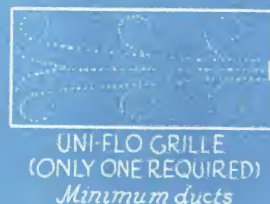
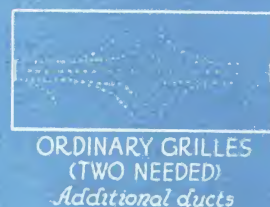
NOISE LEVEL (DECIBELS ABOVE THRESHOLD)



UNIFORM AIR DISTRIBUTION



LONGER "THROW"



AIR FLOW PERPENDICULAR TO FACE OF GRILLE



GRILLES

CORE ASSEMBLY

- 1 Fin core. Comprises one or more sections of UNI-FLO directional diffusing fins (see page 10) fabricated as a single unit.
- 2 U-shaped core moulding, wrapped around fin core and welded at one corner.
- 3 SCREW-LOCK (see below).
- 4 Rigid sheet-steel frame of special form, bent and spot-welded into proper shape and size to hold core assembly.
- 5 Round 1/4 in. bead on edge of frame provides additional strength and covers plaster joint or irregular edge of outlet opening. Other models have wide flange for additional strength and coverage.
- 6 Stop bead for core.
- 7 Mounting lugs, for fastening frame to studding with screws which will be concealed by plaster, wall surface, or baseboard (see details on pages 5, 7 and 9). These lugs are omitted on panel frames.
- 8 Apron, which fits into end of duct or stack head and may be fastened with sheet metal screws.

REGISTERS

A Register is a Grille with a damper attached. In UNI-FLO registers, the fins, core moulding, and frame have the same construction details as the grilles, the damper being attached to the back of the core moulding, as shown.

- 1 Leak-proof, noise-proof, continuous hinge on damper, extending completely across opening.
- 2 Spring tension on damper keeps control chain taut.
- 3 Flat sheet-steel damper with bent-up lower edge to provide rigidity.
- 4 Spring mounting for end of bead control chain. Spiral spring is compressed when damper is closed, thus imposing pressure which closes damper tightly.
- 5 Control lock for bead chain. Chain guide (mounted in fin core) has slot in which any bead of chain may be engaged to maintain required damper position.
- 6 Bead control chain is small and inconspicuous. Extra length chains can be furnished for high sidewall or ceiling mountings.
- 7 Stop collar for attachment to chain at any bead to limit maximum opening of damper. Used when proper adjustments to balance entire system have been determined.

Note: Key-operated damper control can be furnished in place of the chain type described above, to prevent tampering with damper adjustment. Details are shown in drawings on pages 5, 7 and 9.

CORE CONSTRUCTION

- 1 UNI-FLO fins are made from .018 in. sheet steel 1/2 in. wide. These thin fins offer very little resistance to air flow and also provide a high percentage of "free air opening." The noise level is extremely low, no "air whistle" being produced even at velocities higher than previously considered maximum.
- 2 Each fin has special edge formations which vary for different directional flow requirements (see page 10). These formations on the discharge edge are primarily responsible for the turbulence characteristic of the UNI-FLO air stream (see opposite page), and they also add rigidity to the fins.
- 3 Each fin strip is folded, as shown, to produce a firm, interlocking assembly. Through these folds, which

are spaced at 1 in. intervals, the 1/4 x .062 in. support bars are pressed, forming a rigid assembly.

- 4 The fins are spaced 3/16 in. apart, making the opening between fins less than half their depth. These closely-spaced thin fins form a grille face which is very inconspicuous. Toys, pencils, erasers, and other foreign objects cannot be pushed through the small apertures, and the stack head or duct back of the grille is well masked. The closely-spaced, thin, parallel fins also have the effect of "straightening out" the flow in the duct so that the air leaves the grille in parallel lines at right angles to the face; this is especially useful if the grille is near the curved top of a stack head.

SCREW-LOCK

(Standard construction on all grilles and registers)

- 1 Operating screw head.
- 2 Compression spring between nut and moulding. Holds nut in position to engage bead on frame, and provides friction to cause nut to turn and hook in behind bead when screw is turned.
- 3 Special nut, with hook to engage bead on frame. Turning screw hooks nut on bead, and further turning tightens grille against bead. When screw is loosened, hook dis-

engages bead as soon as tension is relieved.

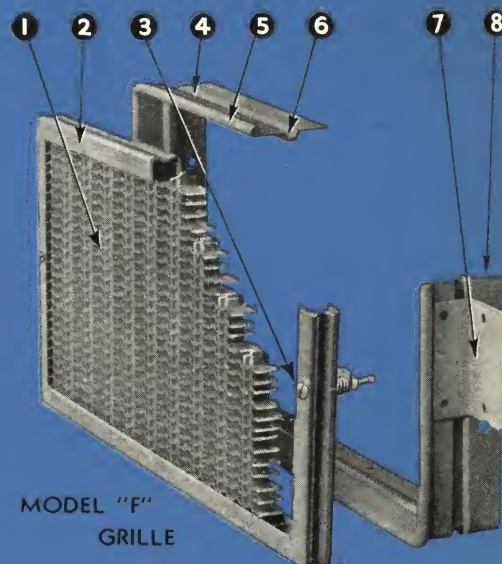
Pinched tip maintains assembly.

SNAP-LOCK (OPTIONAL)

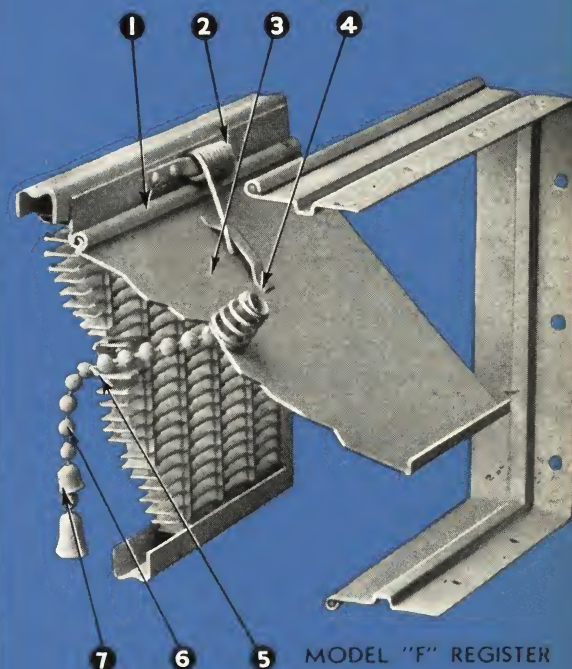
- 4 The groove in the core moulding engages small lugs pressed in the frame and holds the core firmly. "Snap-Lock" is optional, but only on Model "F" and Model "M" Grilles of less than 360 sq. in. nominal area; it is not available on Registers.

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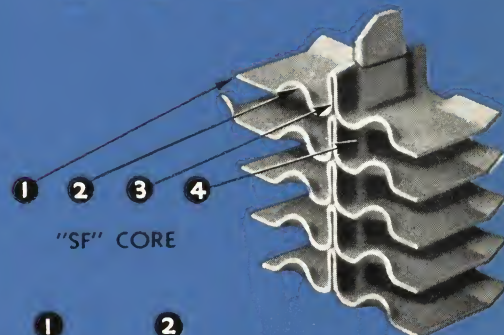
ENGINEERED AIR DISTRIBUTION



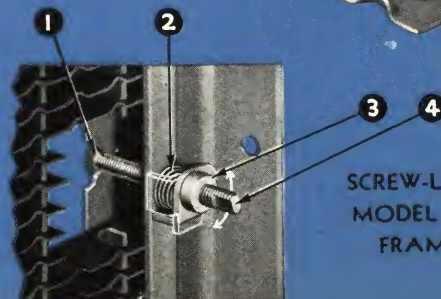
MODEL "F"
GRILLE



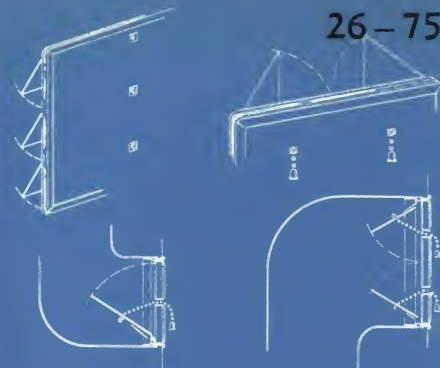
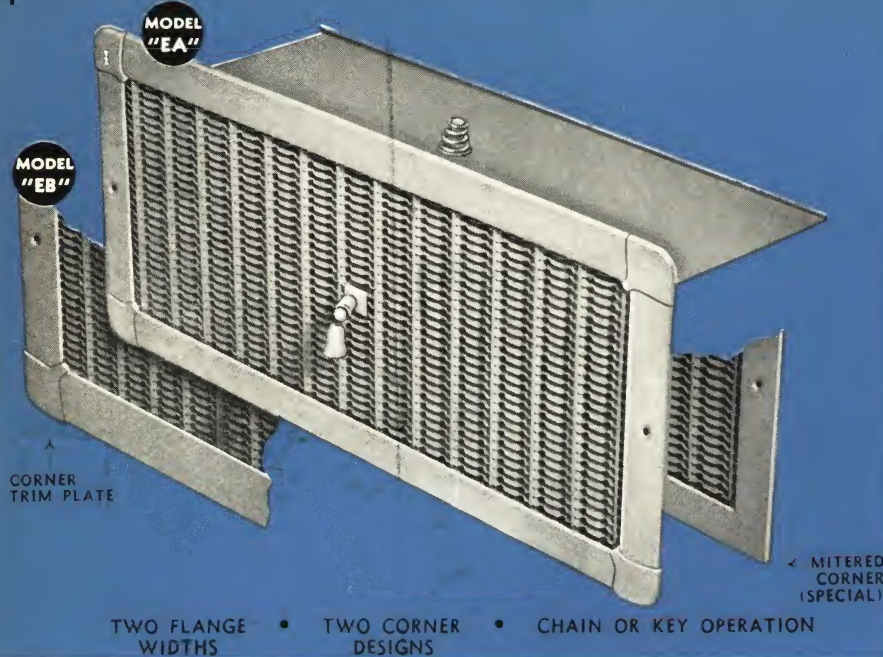
MODEL "F" REGISTER



"SF" CORE



SCREW-LOCK
MODEL "F"
FRAME



SPECIAL DAMPER ARRANGEMENTS



STOP COLLAR ON CHAIN

Model "E" Registers

(TWO MODELS: "EA" AND "EB")

UNI-FLO Model "E" Registers are distinguished by a unit construction in which an extended flange on the core moulding acts as the supporting frame. The outer edge of the flange is turned back to add stiffness and give a good contact with the mounting surface.

Two flange widths are available, Model "EA" ($\frac{7}{8}$ in. flange) and Model "EB" ($1\frac{1}{4}$ in. flange), the latter being intended to provide greater strength and better appearance on the larger sizes. Two types of corner construction can be furnished, as above. The corner with trim plate is standard; plain mitered corner will be furnished on special order. A light Roughing-In Frame can also be supplied, if desired, its purpose being to maintain the proper size opening during the framing stage and to provide support for the stackhead.

The registers are fastened in place after the wall is finished, either before or after decorating.

Model "E" Registers are fastened directly to the wall surface, not to the duct. The duct should be extended so that the core moulding can slip inside to minimize the possibility of leakage. Since the outside dimensions of the moulding correspond to the nominal size of the duct or stackhead, a snug fit is obtainable. If the register is more than 36 in. wide or more than 24 in. high, the core is fabricated in two or more symmetrical sections assembled into a single unit.

One form of Model "E" Register is used for sidewall, panel, or baseboard installations. In baseboard installations, where the register extends above the baseboard, a special angle strip is furnished to snap in place behind the flange and cover the gap between the frame and the wall. This strip extends across the top and down both sides to give a finished appearance.

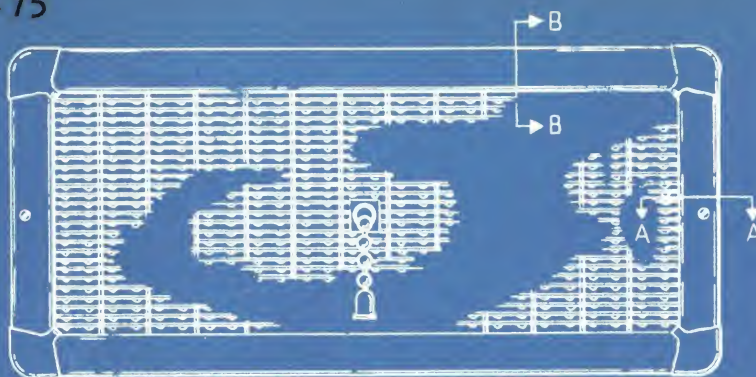
The damper is attached to the frame with a continuous piano-type hinge, leakproof and rattleproof. A coil spring on the hinge holds the damper open; it is positioned by engaging a bead of the control chain in a slot on the chain guide. When the damper is pulled shut, a conical spring on the chain anchor imposes a positive closing pressure to prevent leaks or whistle. A stop collar is provided which can be attached to any bead to limit the maximum opening of the damper to maintain a proper balance of air distribution. Long chains and special control locks are available for high sidewall and ceiling locations. To circumvent unauthorized adjustment, key-operated dampers should be specified.

Chain-operated registers greater than 216 sq. in. or more than 12 in. high, and key-operated registers wider than 36 in. or higher than 12 in. are equipped with two or more dampers. Dampers are hinged at top as standard, but may, by special order, be hinged at sides or at the bottom, or at both top and bottom.

Model "E" Grilles

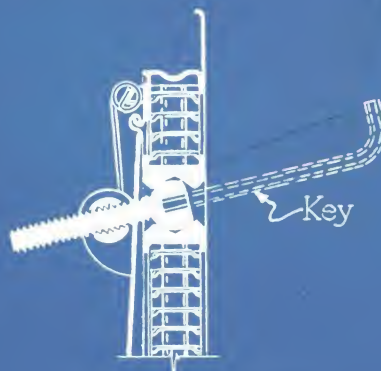
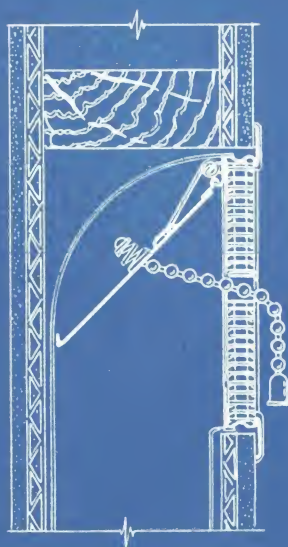
Model "E" Grilles are identical to the Model "E" Registers described above and shown in detail on

page 5 except that they have neither dampers nor damper operating equipment.

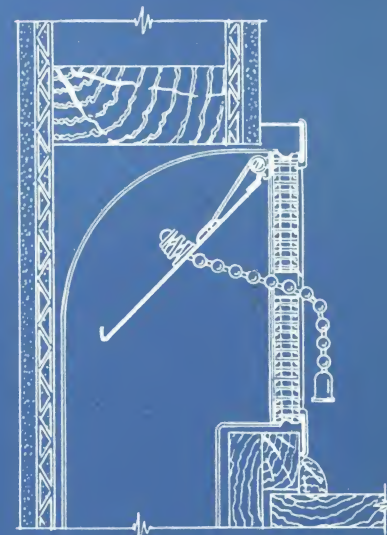


Model "E" Registers

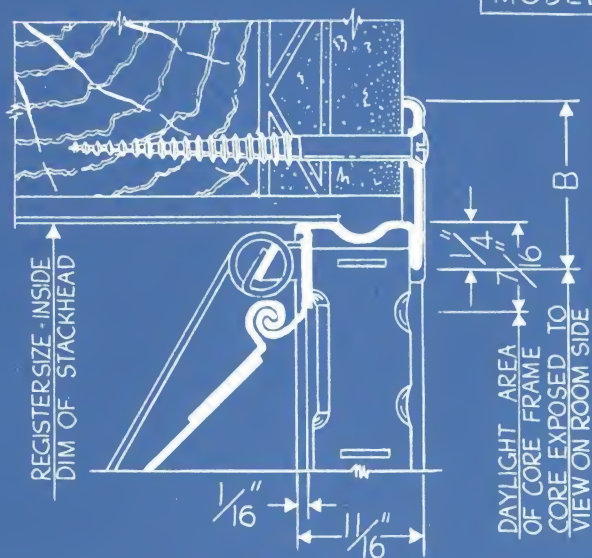
(TWO MODELS: "EA" AND "EB")



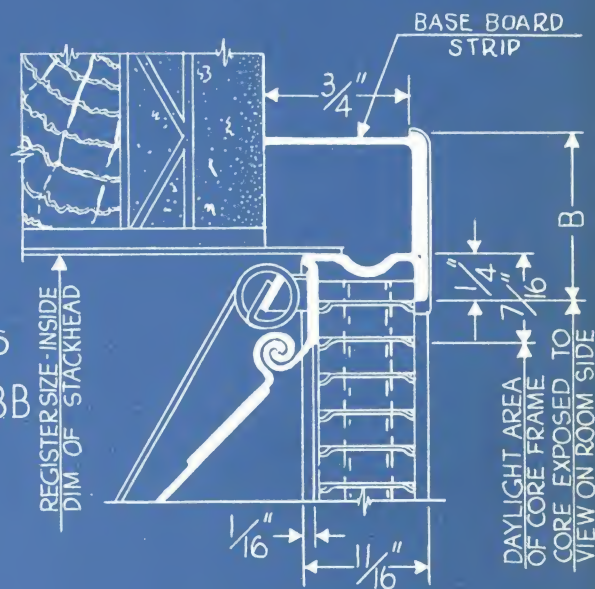
DETAIL OF
KEY OPERATED
CONSTRUCTION



DIMENSION - B -	
MODEL "EA"	$\frac{7}{8}$ "
MODEL "EB"	$1\frac{1}{4}$ "



SECTIONS
at
A A $\longleftrightarrow$ B B



SIDEWALL OR PANEL REGISTER

BASEBOARD REGISTER

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ENGINEERED AIR DISTRIBUTION

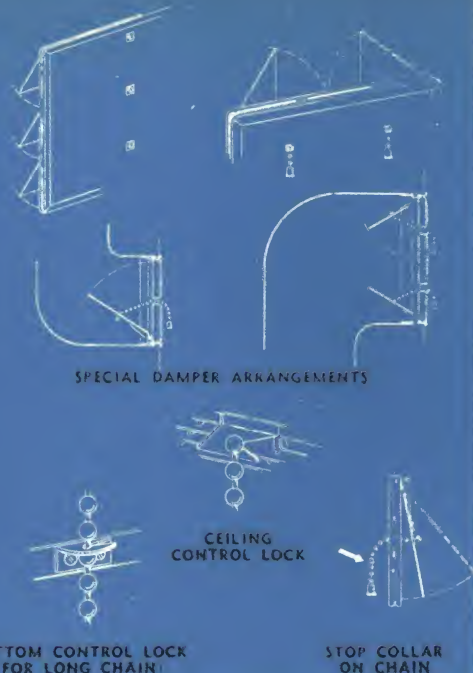
UNI-FLO Grilles and Registers are available in any one of twelve standard FINISHES, as described on page 11. Be sure to specify the finish desired on each unit when ordering.

For DIRECTIONAL FINS, which can be arranged as desired, see page 10. In units having horizontal fins, the DIFFUSERS are pointed upward for cooling service and downward for heating service (specify which is required).

DIRECTIONS FOR ORDERING—Always give size, model, type, fin arrangement, finish, and state whether grille or register. Unless otherwise stated, the first dimension given will be assumed to be the width.



SCREW-LOCK • CHAIN OR KEY-OPERATED DAMPER



Model "F" Registers

UNI-FLO Model "F" Registers feature a separate Roughing-in Frame which shows only as a narrow $\frac{1}{4}$ -in. bead around the Core Member. They are suitable for the smaller and medium-size outlets where a removable core is desired, with an inconspicuous frame. The Core Member is held firmly in the frame by SCREW-LOCKS.

The frame may be roughed-in any time after studding is in place, thus maintaining the size of the opening during remaining construction work, and forestalling the possibility of having to order special size grilles later. Steel angle mounting lugs, punched for screws, are spot-welded to the frame on sidewall and baseboard units. They are omitted on panel units. A minimum of one lug is furnished for each vertical dimension; additional lugs on 12 in. centers for the horizontal dimensions. Shims may be placed under the lugs to take care of irregularities in the studding.

The core assembly is set in place after all construction work is finished, or after the decorating. SCREW-LOCK construction (or "Snap-Lock," which is optional up to 360 sq. in.) permits removal of the core assembly at any time for cleaning purposes, or for reversal of the grille (as in some year-round systems).

The apron of the frame is punched for attachment to the duct or stackhead with sheet-metal screws.

Different forms of Model "F" frames are available for sidewall, panel, and baseboard installations, as shown in detail drawings on the opposite page. The panel type has no mounting lugs; the frame, in panel installations, is held in place by attachment to the duct.

Core assemblies which are more than 36 in. wide or more than 24 in. high are fabricated in two or more symmetrical sections assembled into a single unit, which fits into a frame having additional corner reinforcement. Each section may be removed independently of the others. Details of construction are shown in the drawings of the Model "M" Registers and Grilles on page 9.

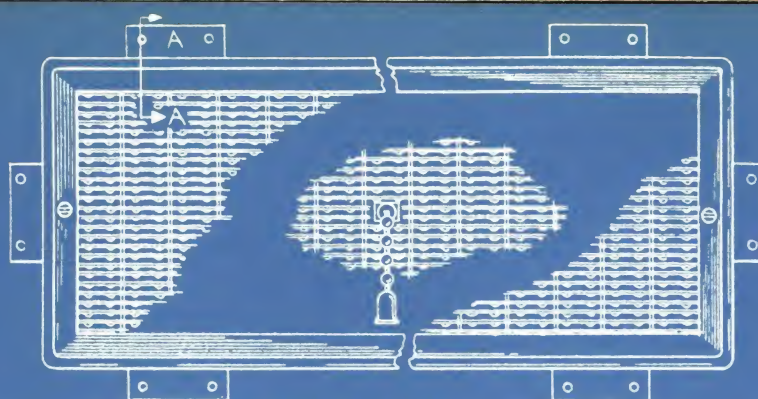
The damper is attached to the frame with a continuous piano-type hinge, leakproof and rattleproof. A coil spring on the hinge holds the damper open, positioned by engaging a bead of the control chain in a slot on the chain guide. When the damper is pulled shut, a conical spring on the chain anchor imposes a positive closing pressure to prevent leaks or whistle. A stop collar is provided which can be attached at any bead to limit the maximum opening of the damper to maintain a proper balance of air distribution. Long chains and special control locks are available for high sidewall and ceiling locations. To circumvent unauthorized adjustment, key-operated dampers should be specified.

Model "F" Grilles

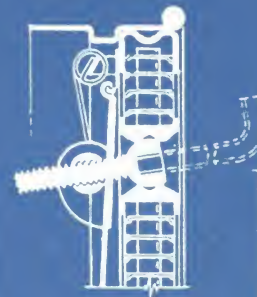
Model "F" Grilles are identical to the Model "F" Registers described above and shown in detail

on page 7 except that they have neither dampers nor damper operating equipment.

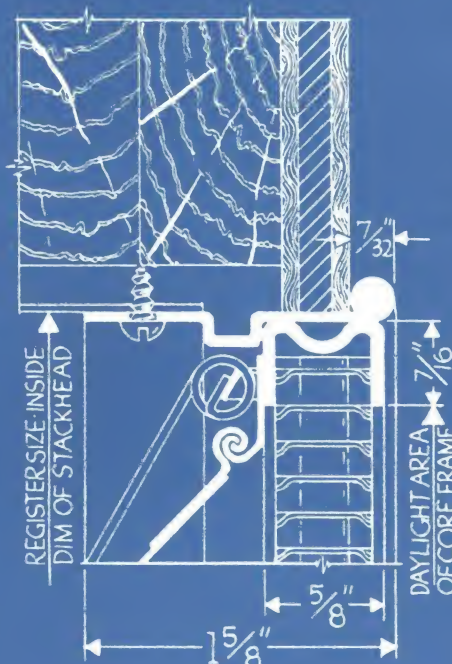
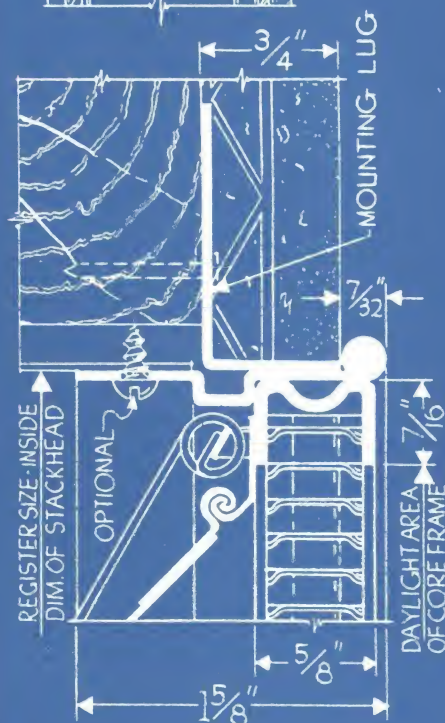
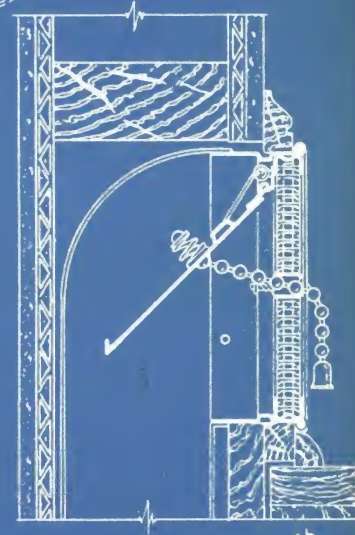
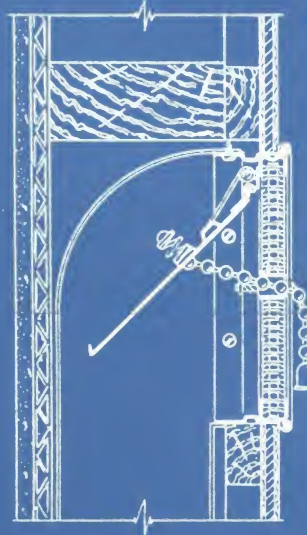
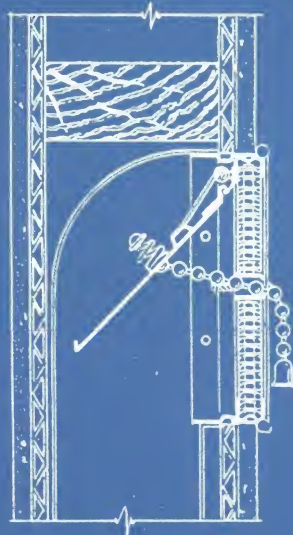
Model "F" Registers



ADDITIONAL
LUGS SPACED
APP. 12" C. to C.



DETAIL OF
KEY OPERATED
CONSTRUCTION



SECTIONS AT A-A
SIDEWALL REGISTER * PANEL REGISTER * BASEBOARD REGISTER

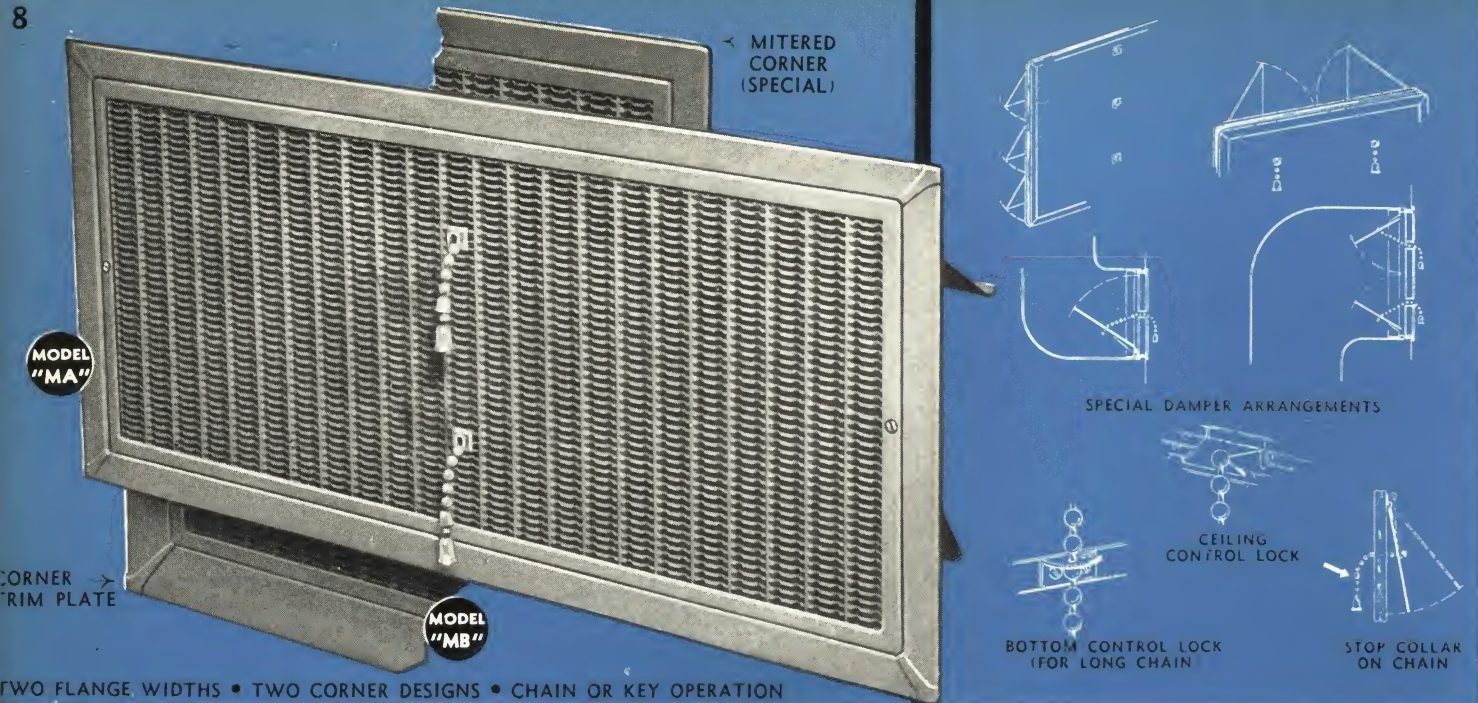
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ENGINEERED AIR DISTRIBUTION

UNI-FLO Grilles and Registers are available in any one of twelve standard FINISHES, as described on page 11. Be sure to specify the finish desired on each unit when ordering.

For DIRECTIONAL FINS, which can be arranged as desired, see page 10. In units having horizontal fins, the DIFFUSERS are pointed upward for cooling service and downward for heating service (specify which is required).

DIRECTIONS FOR ORDERING—Always give size, model, type, fin arrangement, finish, and state whether grille or register. Unless otherwise stated, the first dimension given will be assumed to be the width.



TWO FLANGE WIDTHS • TWO CORNER DESIGNS • CHAIN OR KEY OPERATION

Model "M" Registers

(TWO MODELS: "MA" AND "MB")

UNI-FLO Model "M" Registers are similar in construction to the Model "F" except that the bead frame of the latter is replaced by a flanged frame for rigidity and to provide coverage for irregularities in the opening.

The Model "M" frame is fastened in place after the wall has been surfaced, and before or after decoration. The frame is furnished *without* mounting holes in the flange; these are to be punched or drilled where required when installed (necessitated by the variety of conditions encountered). The apron of the frame is drilled so that it may be attached to the duct or stackhead with sheet-metal screws.

The core assembly is set in place after all construction work is finished, or after decorating. SCREW-LOCK construction (or "Snap-Lock," which is optional on Model "M" Grilles up to 360 sq. in.) also permits removal of the core member at any time for cleaning purposes, or for reversal of the grille (as in some year-round systems), without disturbing the frame.

Two flange widths are available, Model "MA" (7/8-in. flange) and Model "MB" (1 1/16-in. flange). Two types of corner construction can be furnished, as shown above.

The corner with small trim plate is standard; the plain mitered corner will be furnished on special order.

Model "M" Registers are used largely in sidewall applications; therefore only one form of frame is made.

If the register is more than 36 in. wide or more than 24 in. high, the core is fabricated in two or more symmetrical sections assembled into a single unit. Each section may be removed independently of the others. Large frames have additional corner reinforcement as required.

The damper is attached to the frame with a continuous piano-type hinge, leakproof and rattleproof. A coil spring on the hinge holds the damper open, positioned by engaging a bead of the control chain in a slot on the chain guide. When the damper is pulled shut, a conical spring on the chain anchor imposes a positive closing pressure to prevent leaks or whistle. A stop collar is provided which can be attached at any bead to limit the maximum opening of the damper to maintain a proper balance of air distribution. Long chains and special control locks are available for high sidewall and ceiling locations. To circumvent unauthorized adjustment, key-operated dampers should be specified.

Model "M" Grilles

Model "M" Grilles are identical with the Model "M" Registers described above and shown in detail

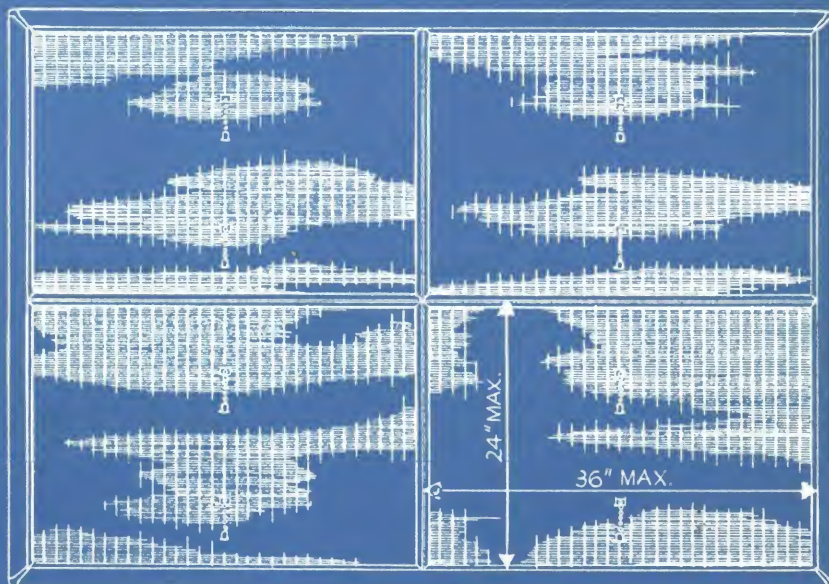
on page 9 except that they have neither dampers nor damper operating equipment.

Model "M" Registers

(TWO MODELS: "MA" AND "MB")

"MA" REGISTER
7/8" FRAME

"MB" REGISTER
1 1/2" FRAME

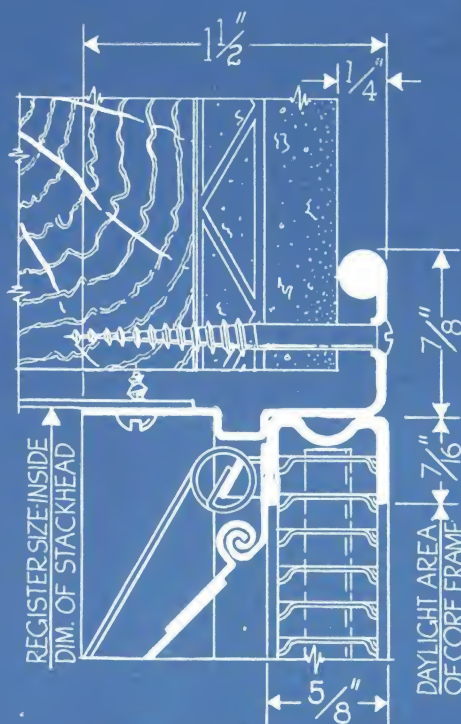


METHOD OF FABRICATING LARGE SIZE REGISTERS

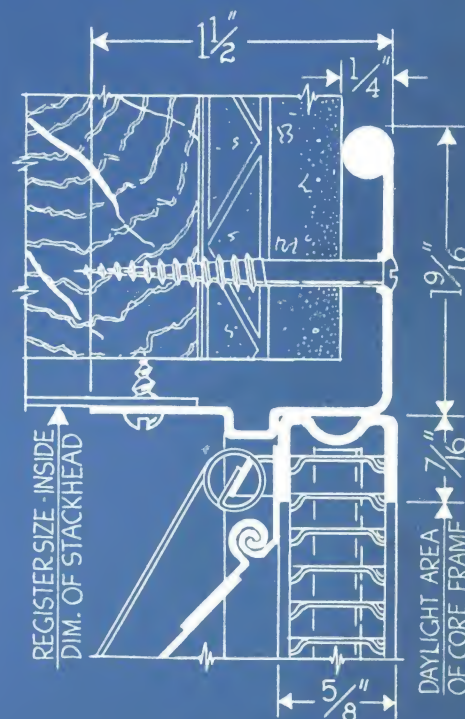
DETAIL OF
CHAIN OPERATED
CONSTRUCTION



DETAIL OF
KEY OPERATED
CONSTRUCTION



"MA" REGISTER
SECTION



"MB" REGISTER
SECTION

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ENGINEERED AIR DISTRIBUTION

UNI-FLO Grilles and Registers are available in any one of twelve standard FINISHES, as described on page 11. Be sure to specify the finish desired on each unit when ordering.

For DIRECTIONAL FINS, which can be arranged as desired, see page 10. In units having horizontal fins, the DIFFUSERS are pointed upward for cooling service and downward for heating service (specify which is required).

DIRECTIONS FOR ORDERING—Always give size, model, type, fin arrangement, finish, and state whether grille or register. Unless otherwise stated, the first dimension given will be assumed to be the width.

Deflecting Fin Arrangements

UNI-FLO Directional Diffusing Fins may be arranged in any desired manner in the core assembly of any Grille or Register. The desired arrangement must be specified. Three types of standard fins, SF, DF, and CF (see opposite page), are suitable for almost any desired combination. The drawings below show some of the common arrangements available; these should be ordered by number to minimize the possibility of misunderstanding and consequent delays in shipment.

Orders for special arrangements should be accompanied by a sketch or a clear description. Unless otherwise indicated, sketches will be understood to show the grille as it appears from the room after installation.

S = SPLIT R = RIGHT L = LEFT U = UP D = DOWN FH = FINS HORIZONTAL FV = FINS VERTICAL
Examples: SFU = "SF" Fins with diffusers up; DFR = Fins directional to the right.



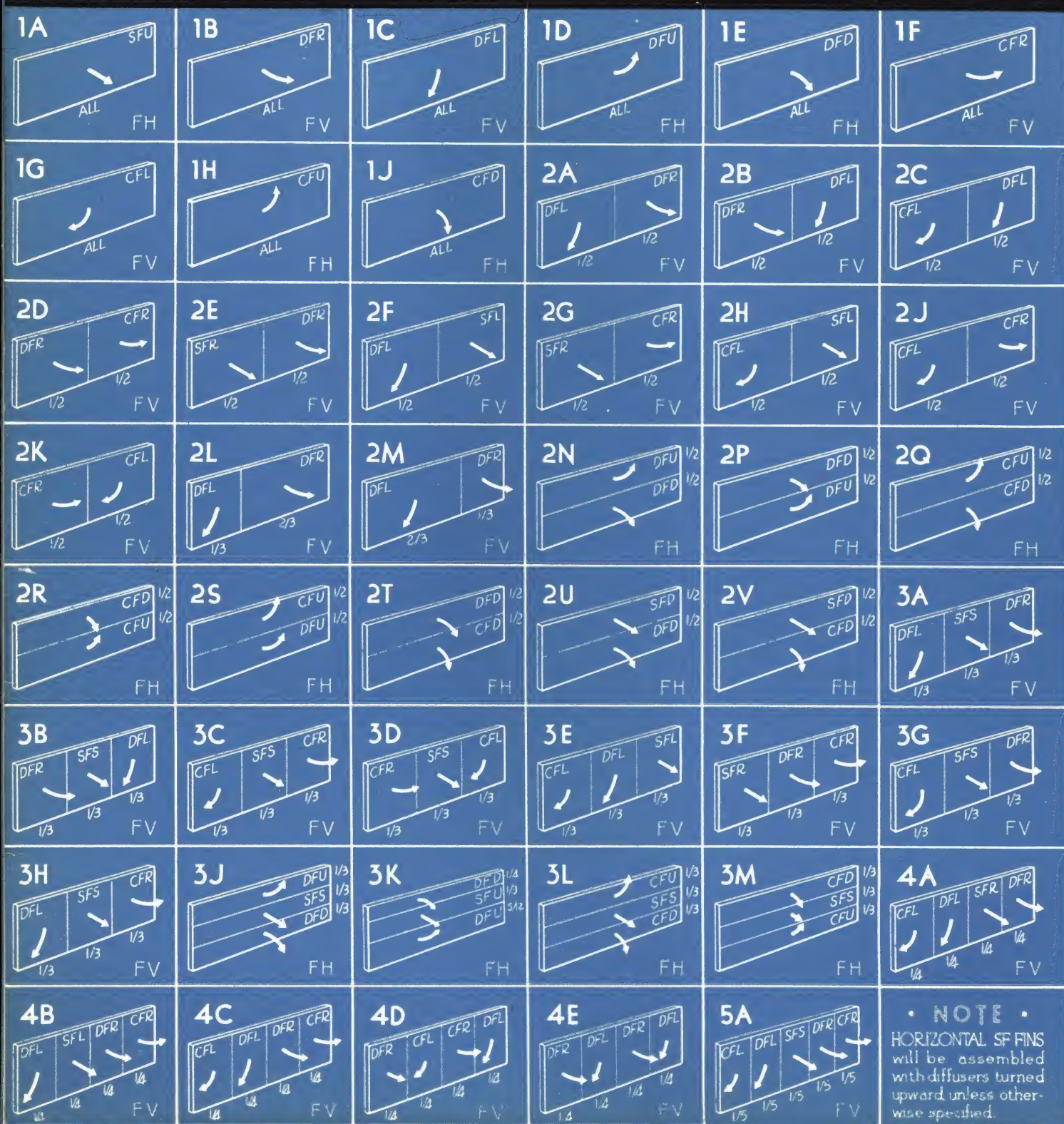
3A Fin Arrangement



5A Fin Arrangement

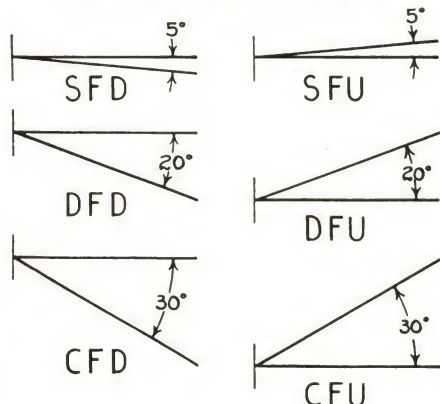


3K Fin Arrangement



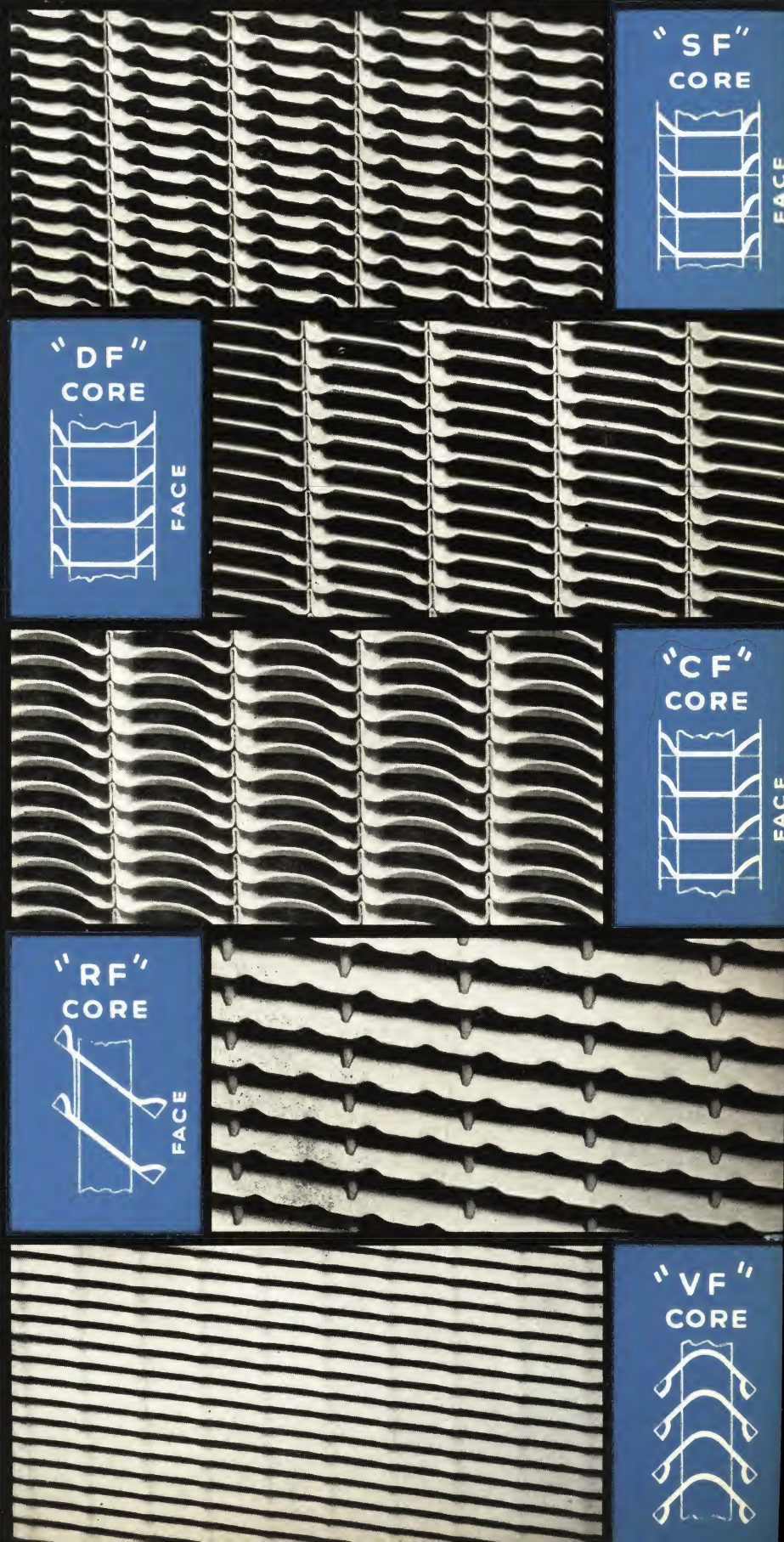
Six standard types of UNI-FLO fins are made, five of which are shown in the pictures and cross-section drawings below. The SF, DF, and CF fins can be combined in accordance with the arrangements shown and described on the opposite page. The RF fins are intended primarily for Recirculating units described on page 12. The VF fins are used in Sight-Tite units, also shown on page 12. The RF and VF fins cannot be combined with each other, or with the SF, DF, and CF fins, in a common moulding without the use of partition bars. There is also a DDF fin (with DF type diffusers on both sides of the fin) used only in the Elbow Turn and Volume Control Deflector described on page 19.

DIVERGENCE CHARTS

*Finishes*

- No. 1 Plain Metal Finish *Mill finish*
- No. 2 Gray Prime Coat Finish *Lacquer dip*
- No. 3 Gun-Metal Finish *Electroplated Oxidized Copper*
- No. 4 Clear Lacquer Finish *Lacquer dip*
- No. 5 Brushed Bronze Finish *Electroplated Oxidized Copper—Brushed*
- No. 6 Plain Zinc Finish *Electroplated*
- No. 7 Satin Nickel Finish *Electroplated Nickel on Copperplated base*
- No. 8 Satin Copper Finish *Electroplated Copper*
- No. 9 Buffed Zinc Finish *Electroplated—Buffed*
- No. 10 Brushed Zinc Finish *Electroplated—Brushed*
- No. 11 Polished Nickel Finish *Electroplated Nickel on Copperplated base*
- No. 12 Rust-Resistant Finish *Baked Gray Prime Coat*

ENGINEERED AIR DISTRIBUTION



RECIRCULATING

Grilles and Registers

UNI-FLO Recirculating Grilles and Registers are specially designed for use in return air openings. A special form of UNI-FLO fin (type "RF," see page 11) characterized by greater free air opening, less tendency to clog, and better masking of the duct or stack head is used. The fins are set at an angle of approximately 35° and are wider spaced than those used in supply units. While a grille is satisfactory in many return air outlets, a register is generally recommended because the dampers are a decided aid in balancing the system, and they also serve as a means of producing a slight positive pressure in the conditioned space where such practice is desirable to eliminate infiltration.

To obtain a unit of this special type, simply order a grille or register of the desired model (EA, EB, F, MA, or MB, as shown on pages 4 to 9) and specify "RF" fins. Large units will be fabricated in sections. "RF" fins cannot, however, be combined with other UNI-FLO fins (SF, DF, CF, DDF, and VF as shown on page 11) in a common frame without the use of partition bars. Dampers may be chain-operated or key-operated, the latter being recommended for this service to prevent tampering.

REINFORCED GRILLES AND REGISTERS (with SF, DF, CF or DDF fins) suitable for use as floor units, or for any application requiring greater than normal rigidity and strength, are also available.

MODEL A

Model A grilles and registers have no frame other than the U-shaped molding which holds the fin assembly, as illustrated at the right. They are identical with Models F and M except they have neither frame nor Screw-lock.

Sight-Tite

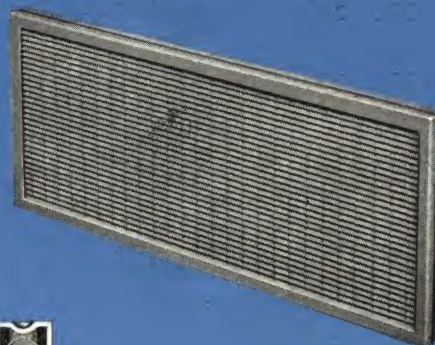
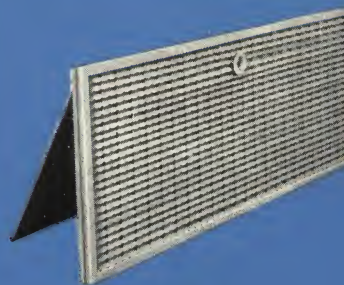
Ventilation Grilles

The UNI-FLO "Sight-Tite" grille meets the demand for a ventilation unit which cannot be seen through from any angle. As shown in the sectional view, the fins are of an inverted V-shape and overlap. Diffusers on the edges of the fins add rigidity and make for a pleasing appearance. This special type of grille is useful for ventilation openings in doors, walls, panels, baseboards, etc. It may also be used for exterior fresh air intake openings, as it provides an effective barrier to rain or snow. The "Sight-Tite" core carries the symbol "VF."

UNI-FLO "Sight-Tite" units may be obtained in any of the standard models (EA, EB, F, MA, or MB, as shown on pages 4 to 9) and in any of the listed finishes by simply ordering standard model grilles or registers and specifying the "VF" core. Large units will be fabricated in sections. VF fins cannot, however, be combined with other Uni-Flo fins (SF, DF, CF, DDF and RF, as shown on page 11) in a common frame without the use of partition bars.



MODEL A GRILLE WITH
RF CORE



MODEL A GRILLE WITH
VF CORE



● FROM ABOVE
You can't see through it...

● FROM STRAIGHT ON
You can't see through it...

● FROM BELOW
You can't see through it...

It's **Sight-Tite**

Ceiling Outlets



venturi-flo

Features

The Venturi-Flo is a new type of ceiling outlet based on the Venturi principle adapted to air distribution and circulation, designed to properly mix and distribute the air, quietly and efficiently. They are available for handling small as well as very large volumes of air.

The units are constructed entirely of stamped and spun steel members available in finishes Nos. 1, 2, 3, 4, 5, 6, 8, 9, 10 as described on page 11. They are shipped in two pieces: the ceiling plate assembly and the diffuser assembly. Fittings are available for the attaching of any standard lighting fixture below the outlet.

Venturi-Flo is made in four standard models, each designed for a particular range of air volume, velocity, and distribution.

- ★ QUIET OPERATION
- ★ HIGH DIFFUSION EFFICIENCY
- ★ ATTRACTIVE APPEARANCE
- ★ WIDE RANGE OF CAPACITIES
- ★ HIGH RATE OF INTERNAL MIXING
- ★ RIGID CONSTRUCTION

DETAILS OF CONSTRUCTION

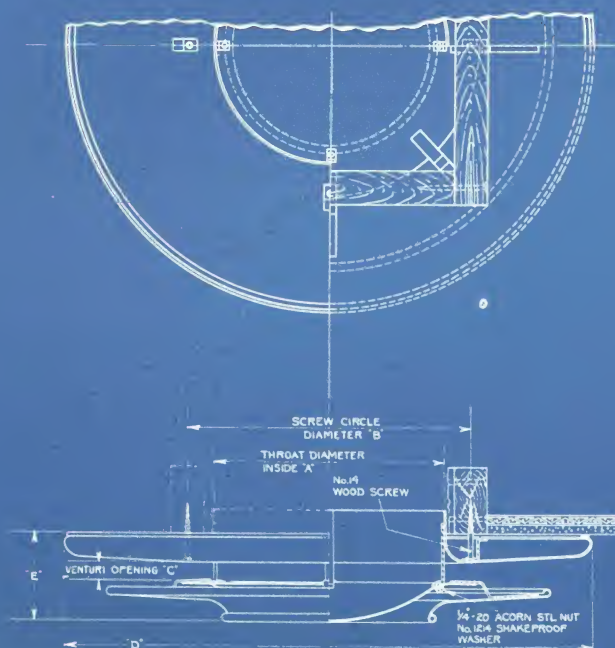


TABLE OF DIMENSIONS

Model	Part No.	Dimensions in Inches				
		A	B	C	D	E
616	YU6 523	6	9	1/2	16	3 1/4
	" 524	"	"	1	"	3 3/4
	" 525	"	"	1 1/2	"	4 1/4
1024	" 526	10	13 1/4	1	24	4 5/8
	" 527	"	"	1 1/2	"	5 1/8
	" 528	"	"	2	"	5 5/8
1432	" 516	14	17 1/4	1	32	5 1/8
	" 517	"	"	2	"	6 1/8
	" 518	"	"	3	"	7 1/8
2454	" 519	24	29	2	54	8
	" 520	"	"	3	"	9
	" 521	"	"	4	"	10
	" 522	"	"	5	"	11



UNI-FLO-LITE



MODEL "P" CIRCULAR OUTLET



MODEL "S" CIRCULAR OUTLET



SQUARE OR RECTANGULAR OUTLET

SQUARE OR RECTANGULAR OUTLET
SUPPLY AND EXHAUST

Ceiling Outlets

UNI-FLO-LITE

The UNI-FLO-LITE is a special unit with which it is possible to supply both ventilation and illumination from a single ceiling fixture. Besides being an adequate lighting unit of attractive appearance, it affords an effective means for uniform, diffused air distribution.

The all-aluminum, satin-finish hanger supports a cylindrical grille of UNI-FLO diffusing fins and a flat-bottom, bowl-shaped, frosted glass light globe. The globe is held in place by a single thumb-nut of decorative pattern. A dome-shaped member deflects the air through the grille and also serves as a light reflector.

For sizes available, see opposite page.

CIRCULAR

UNI-FLO Circular Ceiling Outlets meet the demand for an attractive and effective form of ceiling unit. Until recently, common practice has limited the location of air outlets to the walls only, with the exception of theatres and other large structures where special treatment was possible, but now the desirability of introducing air into the conditioned space from one or more ceiling locations has become recognized.

Two models are available. The Model "P" unit is made up of pressed steel members and can be furnished in any of the standard finishes. (See page 11). The Model "S" unit has a spun aluminum hanger and is available only with satin finish. Two sizes, 16-in. core diameter and 12-in. core diameter, are available in each model. The hanger supports a cylindrical UNI-FLO diffusing-fin core inside of which is an air deflecting member. Specifications for the four standard models appear in the table on page 17. Details of construction are shown in the drawings on page 16.

SQUARE and RECTANGULAR

UNI-FLO Square and Rectangular Ceiling Outlets meet the demand for a simple and attractive ceiling unit capable of supplying more air in one direction than another, and in which there is more flexibility of air distribution control from the various faces. Rectangular units are sometimes better adapted to long and narrow rooms than the Circular Ceiling Grilles, and in some cases the square or rectangular form will fit more attractively into the decorative scheme.

These units are fabricated from pressed steel forms, with standard UNI-FLO grille cores set into the sides. They are available in nearly all of the standard finishes listed on page 11. The unit is designed to be attached directly to wood blocking in the manner shown on page 17.

SUPPLY AND EXHAUST

These units are similar to those described above, but are equipped with a return outlet on the underside. Available sizes and details of construction are shown on page 17.

Ceiling Outlets

DETAILS OF CONSTRUCTION

UNI-FLO-LITE

The hanger is roughed-in to a square frame in the ceiling outlet after the finish plaster coat has been applied and before or after the decorating has been completed. The grille unit and light assembly may be installed any time during or after the decorating, thus precluding any possibility of damaging these parts.

The UNI-FLO diffusing fins which are used in the grille core produce a blanket of air that spreads uniformly in all directions and mixes rapidly with the room air so that the temperature of the supply air quickly approaches the temperature of the room. As in other UNI-FLO units, supply air may be introduced at lower temperatures and higher velocities than with ordinary types of outlets, without producing cold drafts or "air whistle".

If a UNI-FLO-LITE should have to be placed where near-by column or corner construction obstructs the air flow, part of the grille may easily be blocked off inconspicuously from inside the core.

UNI-FLO-LITES are available in two models, as shown in the drawings at the left.

YUB 500 has a 16-in. diameter grille and light bowl, and receptacles for three 150-watt bulbs.

YUB 501 has a 12-in. diameter grille and light bowl, and receptacles for two 100-watt bulbs.

The grille core has a gun-metal finish as standard, affording a pleasing contrast with the rest of the fixture. Light bulbs and wiring are not furnished with the unit.

Special

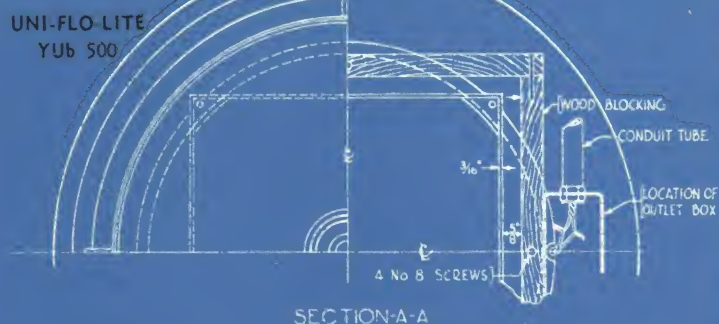
UNI-FLO-LITES

There are several special UNI-FLO-LITE designs which are available on order.

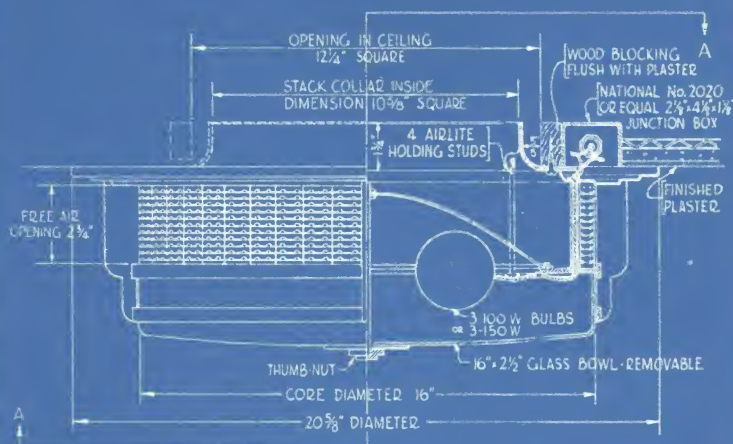
For Railroad Service. These designs are characterized by specially rugged construction to withstand extra vibration. Two sizes are available: YUB 502 (and YUB 503) have about 50% greater air capacity than YUB 500; YUB 504 has the same capacity as YUB 501. They have the same lighting capacity as the standard units.

For Greater Lighting Capacity. YUB 1001 is a modified design of the 16-in. size. (YUB 500) in which the light compartment is large enough to accommodate up to 1000 watts lighting capacity. A section of grille core has been added to provide ventilation for the additional heat generated.

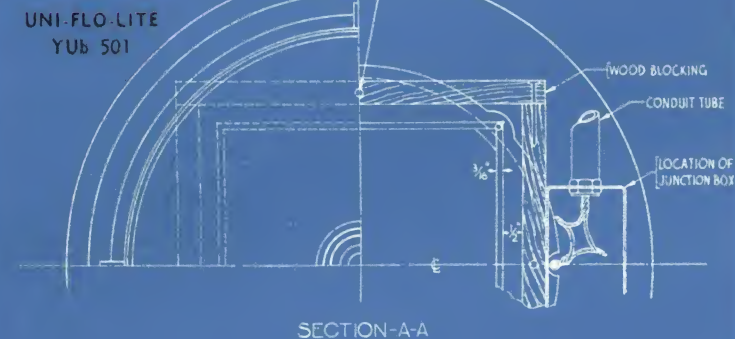
Part No.	Size, Inches	Maximum Lighting Capacity	Core Area sq. ft.
YUB 500	16	450 W	1.4
YUB 501	12	200 W	.656
YUB 502	16	450 W	2.1
YUB 503	16	450 W	2.1
YUB 504	12	200 W	.656
YUB 1001	16	1000 W	1.4



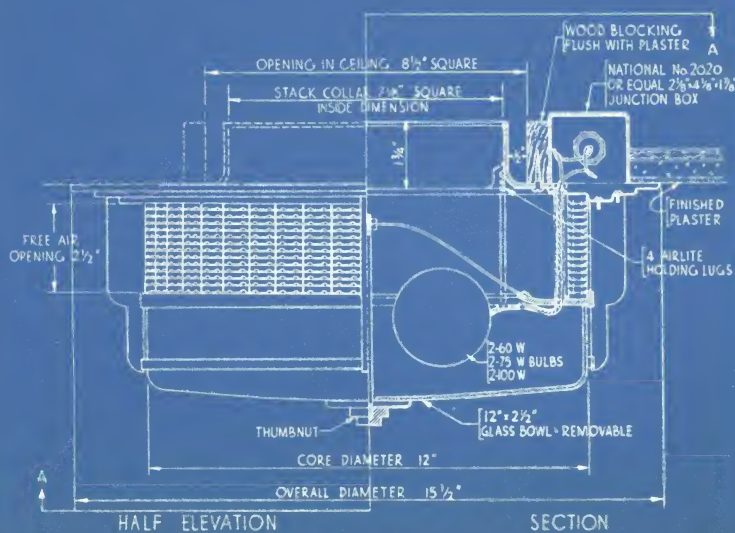
SECTION-A-A



SECTION-A-A



SECTION-A-A

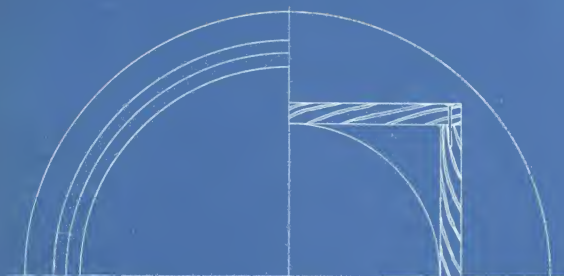


HALF ELEVATION

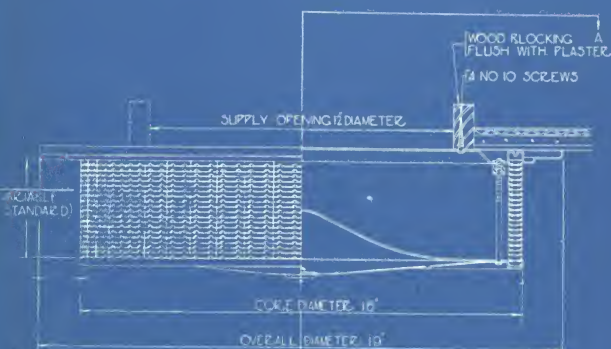
SECTION

Ceiling Outlets

MODEL P-16



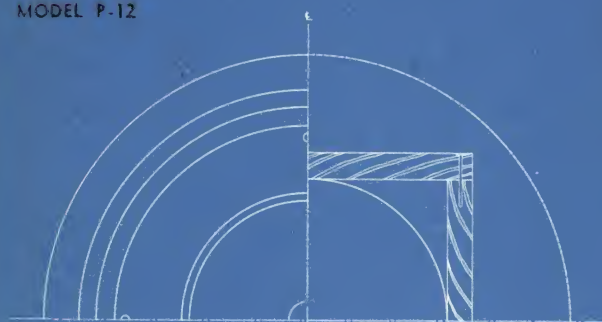
SECTION A-A



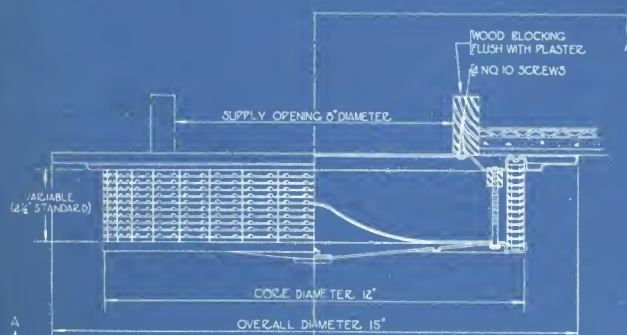
HALF ELEVATION

SECTION

MODEL P-12



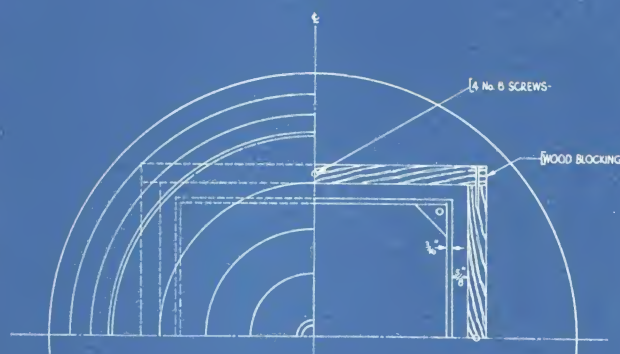
SECTION A-A



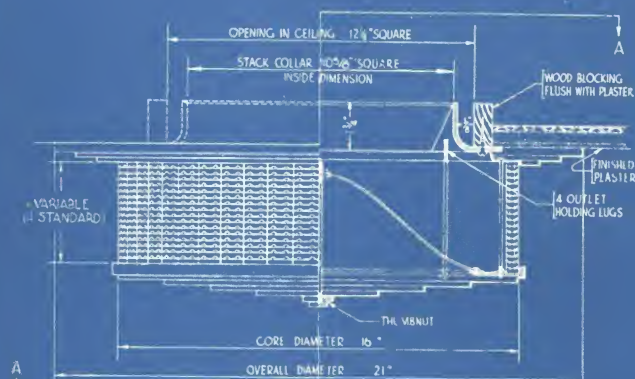
HALF ELEVATION

SECTION

MODEL S-16



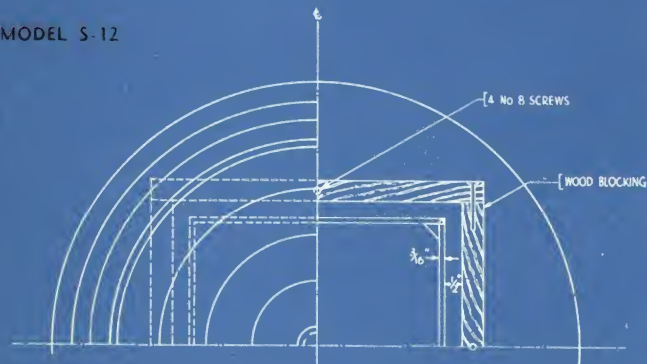
SECTION A-A



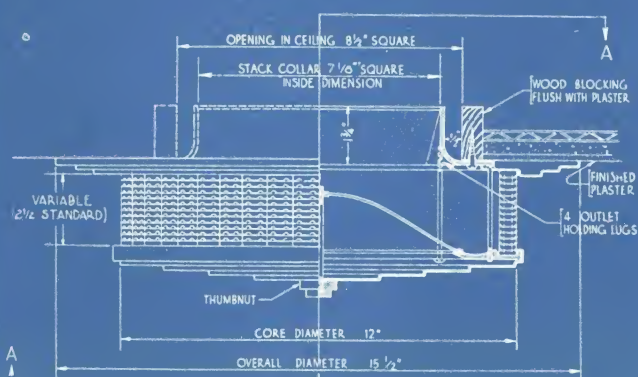
HALF ELEVATION

SECTION

MODEL S-12



SECTION A-A



HALF ELEVATION

SECTION

Ceiling Outlets

DETAILS OF CONSTRUCTION

CIRCULAR

The UNI-FLO diffusing fins which are used in the grille core produce a blanket of air that spreads uniformly in all directions and mixes rapidly with the room air so that the temperature of the supply air quickly approaches the temperature of the room. As in other UNI-FLO units, supply air may be introduced at lower temperatures and higher velocities than with ordinary types of outlets, without producing cold drafts or "air whistle."

If a UNIT should have to be placed where near-by column or corner construction obstructs the air flow, part of the grille may easily be blocked off inconspicuously from inside the core.

The Model "S" unit is equipped with a square or demountable stack collar which should be attached to wood blocking in the manner shown on page 16. Ordinarily, the stack collar is set at the time the stack head is installed while the hanger proper is mounted after the decorating is completed. The possibility of accidental damage during construction is thereby precluded. The Model "P" unit has no stack collar; a round stack head should, therefore, be extended about one-half inch below the wood blocking so that the intake of the unit may be slipped over it after the decorating is completed.

Model "P" units may be equipped with adjustable dampers. Either of these units may be supplied with fittings for the attaching of any standard lighting fixture below the outlet.

Part No.	Model	Core Area, sq. ft.
YUb 505	S-16	1.4
YUb 506	S-12	.656
YUb 508	P-16	1.4
YUb 509	P-12	.656

SQUARE and RECTANGULAR

UNI-FLO diffusing fins in the grille cores assure uniform distribution of a diffused blanket of air throughout the conditioned space. As in other UNI-FLO units, supply air may be introduced at lower temperatures and higher velocities than with ordinary types of outlets, without producing "air whistle" or unpleasant drafts. To obtain the broadest air distribution from each face, cores with "5-A" directional fins (see page 10) will usually be used, although other fin arrangements will be furnished if necessary to meet given conditions. Specifications for the four sizes for which parts and partial assemblies will be carried in stock appear in the table.

These units may be supplied with fittings for the attaching of any standard lighting fixture below the outlet.

SUPPLY AND EXHAUST COMBINATION

Units similar to those described above, but equipped with a return outlet on the under side, are also available. It offers an ideal solution to the problem of locating the exhaust outlet most advantageously, with respect to the supply outlets. The combination unit overcomes the disadvantages of remotely separated supply and return outlets, the air being forced out across the ceiling, from where it falls along the walls, is drawn through the occupancy zone, and up and out at the center of the room. Specifications for the four sizes for which parts and partial assemblies will be carried in stock appear in the table. The core area of the return grille is the same as that shown for the supply grilles. Other sizes and shapes will be made up to order.

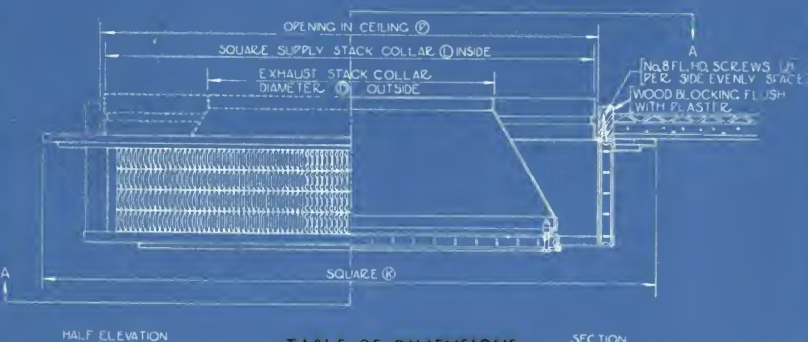
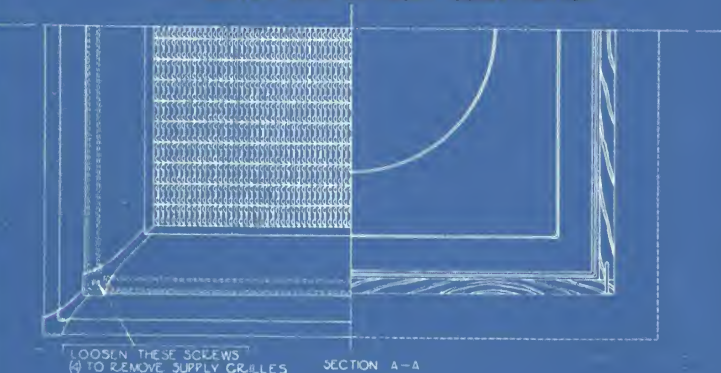
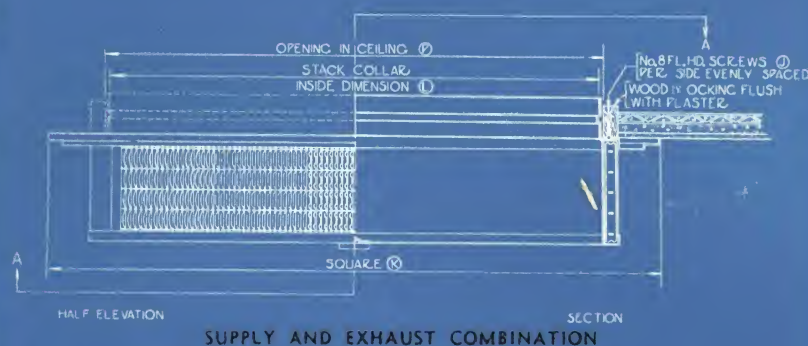
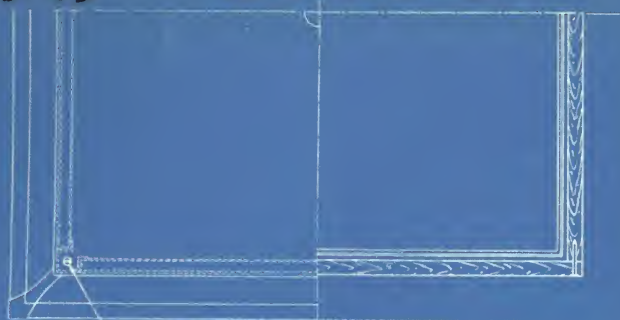


TABLE OF DIMENSIONS

Part Number	Supply Grille Size (4)	Supply Grille Core Area Sq. Ft. (Total)	D	J	K	L	P	Return Grille (1) Core Area Sq. Ft.
YUb-510	20 x 4	1.48	..	3	26	20	12½	
YUb-511	24 x 5	2.48	..	3	30	24	14½	
YUb-512	30 x 6	3.88	..	4	36	30	18½	
YUb-513	32 x 7	4.96	..	4	38	32	20½	
YUb-1002-A	20 x 4	1.48	12	3	26	20	20½	1.48
YUb-1002-B	24 x 5	2.48	14	4	30	24	24½	2.48
YUb-1002-C	30 x 6	3.88	18	4	36	30	30½	3.88
YUb-1002-D	32 x 7	4.96	20	5	38	32	32½	4.96



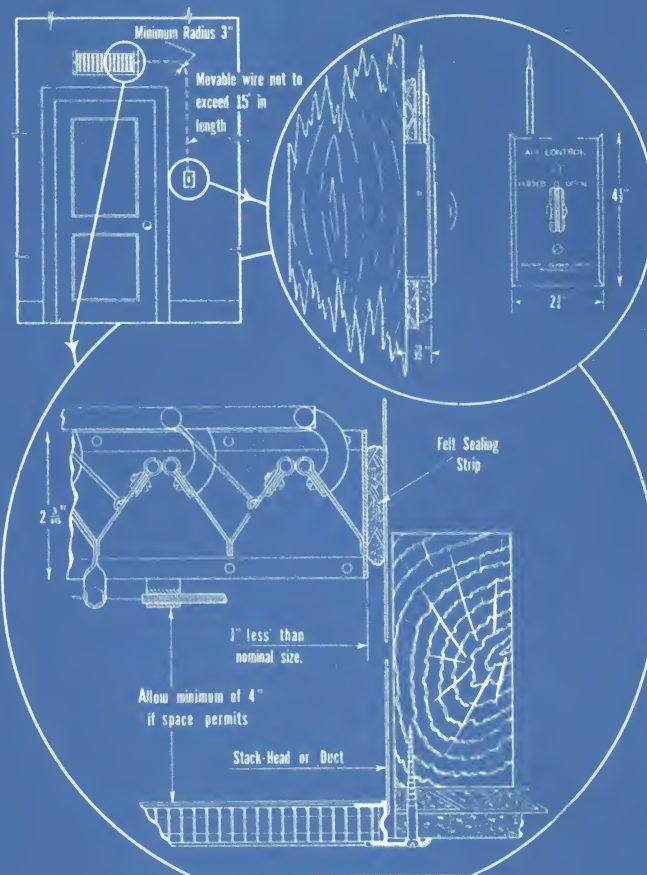
VOLADJUSTER

The Voladjuster, A Manually Operated Remote Volume Control, is similar in construction to the standard Volocitrol described on page 19 except that all blades are moved simultaneously by linkage. The blades move toward or away from each other in pairs, thus avoiding the directional effect imparted to the air stream by single or multi-blade types of dampers. The Voladjuster should be installed in the duct back of the grille, as shown in the adjacent detail.

The manual control unit consists of a small pressed steel case which houses a sector-drum that carries a flexible cable-covered wire similar to that previously used for the manual choke on automobiles. This wire and cable are carried inside $\frac{1}{4}$ in. O.D. copper tubing which may be concealed inside the wall or concealed in the thickness of the plaster. The manual control box is of such a depth that when it is nailed to the studding it will be flush with plaster of standard thickness. A standard flush type plate, similar to a switch plate, appropriately marked, is attached to the box after the installation is complete. The sector-drum of the manual control is rotated with detent action by a black molded handle. The distance between the Voladjuster and the manual control should not exceed 15 feet actual length of wire. If longer lengths are absolutely necessary, submit full particulars to the factory.

The Voladjuster proper is furnished in plain metal (No. 1 finish) and the manual control plate in plain electroplated zinc (No. 6 finish) as standard. Finishes Nos. 1, 2, 3, 4, and 5 are optional for the plate only (see page 11).

MANUAL REMOTE CONTROL



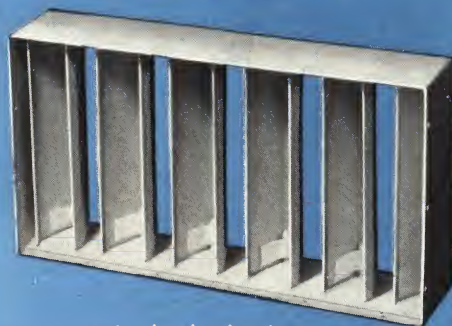
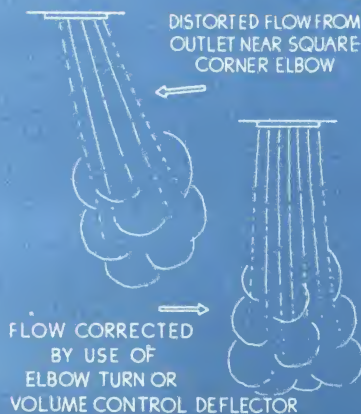
MULTI-LOUVER REGISTERS

Multi-louver registers are available in Model EA and EB frames as standard; Model MA and MB frames are available on special order. This type of register is designed particularly for installations which do not have room enough to allow full opening of a single louver damper. The multi-louvers control the volume of air and still permit equal air distribution over the entire face of the register.

The register consists of a series of blades 1 inch wide, parallel to the first dimension, unless otherwise specified, and carried in a frame welded to the back of the grille frame. Blades are connected with a link which is driven by the operating handle. The handle of the operating mechanism projects through a slot in the flange of the frame. This slot is in the right hand flange if the blades are horizontal and in either the top or bottom flange if the blades are vertical.

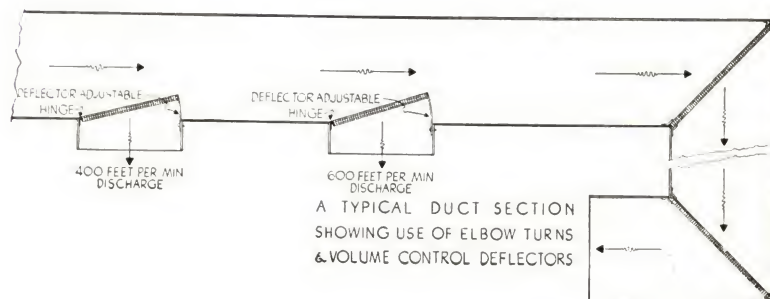


The illustration at the right shows an Elbow Turn installed in a large duct which makes a right-angle downward turn at this point.



Elbow TURN

The UNI-FLO Elbow Turn is a section of special core material (designated as "DDF") with deflecting edges on both sides of the fins. It is designed for use in square-cornered duct elbows, as illustrated, to provide uniform air flow around and beyond the turn and to reduce materially the resistance caused by eddies, reverse air flow, and low pressure areas in such elbows. Curved elbows, commonly used, can be replaced by square-cornered elbows, thus decreasing the space required for duct work. Square cornered elbows, when installed in existing buildings impart a beam-like appearance to the duct work. Elbow turns are also useful at the top of stack heads, to provide straight and uniform air delivery to the outlet.



Volume Control DEFLECTOR

UNI-FLO Volume Control Deflectors are recommended for use in trunk ducts, as illustrated above, to control accurately the volume of air deflected into branch ducts and also to provide straight and uniformly distributed air flow in each branch duct. In short branches, they prevent piling up and distortion of the discharge air stream; and the junctions with the main duct may be of square construction, as shown, thus conserving space. The UNI-FLO Volume Control Deflector consists of a section of special core material (designated as "DDF") with deflecting edges on both sides of the fins, mounted in a hinged frame the same size as the branch duct and having a hood extension to prevent leakage around the unit. When the Deflector has been adjusted so that it scoops out the desired amount of air, it is secured to the duct work by sheet metal screws.

The VOLOCITROL

The UNI-FLO Volocitrol is useful for a number of purposes in the control of air distribution. As shown at the left, the unit is composed of a frame which holds several pairs of pivoted louvers, each of which may be positioned independently. When mounted in a duct, the louvers may be set as an air valve to restrict the flow across the whole duct or partially in any portion of it. Directional control can be obtained by swinging one louver of each pair forward, and setting the pair at whatever angle is desired, or the louvers can be set at an angle with each other to give somewhat the same effect as an Elbow Turn or Volume Control Deflector (see above). The louvers, which can be set by hand, turn on friction pivot pins and will maintain their positions when once set. A felt edging strip, to fit between the frame and the duct and prevent leaks or rattles, is furnished as standard. Air conditioning engineers who have had to face unusual or unanticipated air flow conditions will appreciate the flexibility of the Volocitrol for handling such problems. The overall dimensions of the Volocitrol are $\frac{1}{4}$ in. less than its nominal size.



RCA Building, Rockefeller Center, New York (Grilles in many new offices). Engineer: Clyde R. Place. Architects: Corbett, Harrison & McMurray; Hood & Foulhoux; Reinhard & Hofmeister. General Contractor: Hegeman-Harris Company, Inc. Heating Contractor: Baker, Smith & Co., Inc. (Photograph by Samuel H. Gottscho.)



Chicago Daily News Building, Chicago (Grilles in Offices, CHICAGO DAILY NEWS). Architect: Holabird & Root. Air Conditioning Contractor: Kroeschell Engineering Co. Heating Contractor: Robert Gordon Company (Photograph by Chicago Architectural Photographing Company).



The Waldorf-Astoria, New York (Grilles in Lounge Cafe only). Architects: Schultze & Weaver. Engineer: Clyde R. Place.

A Few

OF THE THOUSANDS OF INSTALLATIONS



GRILLES & REGISTERS

Courier Journal Bldg., Louisville, Ky.

Engineer and Contractor: Peerless Air Conditioning Co.

Brown Palace Hotel, Denver, Colo.

Architect: Walter H. Simon. Contractor: York Ice Machinery Co.

University of Washington Library, Seattle, Wash. Architect: Bebb &

Gould. Contractor: Rautman Plumbing & Heating Co.

J. C. Penney Store, Spokane, Wash. Architects: J. C. Penney Engi-

neering Dept. Contractor: Brandt Bros.

Office of Chesapeake Corp., West Point, Va.

Contractor: Thermal Engineering Co., Richmond.

Vicks Chemical Co., Greensboro, N. C.

Contractor: Air Conditioning Co., Greensboro.

First National Bank, Shreveport, La.

Contractor: Interstate Electric Co.

Al Levy's Grill, Hollywood, Calif.

Engineer: Holmes & Narver. Contractor: A. J. Garcia Co.

F. W. Woolworth Co. at Los Angeles, Calif., Phoenix, Ariz., and

Sacramento. Contractor: York Ice Machinery Co.

Mellon National Bank Bldg., Pittsburgh, Pa. Consulting Engineer:

M. G. Harbula. Sheet Metal Contractors: Morgan Bros. Co.

Gimbel's Pittsburgh, Pa. Consulting Engineer: Charles Z. Leopold.

Contractor: York Ice Machinery Co.

The Citadel Chapel, Charleston, S. C. Architect: J. E. Sirrine & Co.

Contractor: Fisk-Carter Construction Co.

Carson Pirie Scott & Co., Chicago, Ill. Engineer: Leonard Construc-

tion Co. Contractor (Air Conditioning): Mehring & Hanson Co.

Medical Arts Building, Duluth, Minn. (Second & fourth floors.)

Architect: Erickson Co. Air Conditioning Contractor: Walker

Jamar Co.

Electric Building, Omaha, Nebr.

Owners, Nebraska Power Co.

First National Bank Bldg., Lincoln, Nebr. Air Conditioning Con-

tractor: Natkin Engineering Co. Sheet Metal: Rudge & Guen-

zel Co.

St. Mary's Church Recreation Building, Erie, Pa.

Architect: G. W. Stickle. Contractor: Warren Co.

Indiana National Bank, Indianapolis, Ind.

Architect: D. A. Bohlen & Son. Contractor: Strong Bros.

Boston Store, Milwaukee, Wis.

Contractor: Downey Heating Co.

WTMJ, The Milwaukee Journal, Milwaukee, Wis. Contractors:

G. E. Pfugradt Co. and Midwest Ventilating Works.

Westinghouse Electric & Mfg. Co., Mansfield Ohio. Architects &

Engineers: Owner, Contractor: Hoffman & Harpst Co.

Grand Rapids Gas Light Co., Grand Rapids, Mich. Engineer: Bryant

Heater Co., Chicago. Contractor: John Van der Zee & Son.

Horace Mann High School, Salt Lake City, Utah.

Architect: Board of Education, Engineering Dept.

Maytag Office Building, Newton, Ia. Architect: Thielbar & Fugard.

Air Conditioning Contractor: Carstens Bros.

Iowa City Press Citizen Bldg., Iowa City, Ia.

Architect: Kruse & Klein. Contractor: Carstens Bros.

The John Shillito Co., Cincinnati, Ohio.

Architect: E. E. Ashley. Contractor: York Ice Machinery Co.

Cincinnati Art Museum, Cincinnati, Ohio.

Engineer: Fosdick & Hilmer. Contractor: Young & Bertke.

Trust Company of Georgia Building, Atlanta, Ga. Consulting Engi-

neer: Newcomb & Boyd. Contractor: Barge-Thompson Co.

Wyandotte High School, Kansas City, Kan. Architect: Hamilton,

Fellows & Nedved, Chicago. Associate Architect: J. W. Rado-

insky. Contractor: Kornbrodt Kornice Kompany.

Katz Drug Stores. Six stores in Kansas City, Mo., Oklahoma City,

Okla., Des Moines, Ia., and Kansas City, Kan.

Archives Building, Washington, D. C.

Architect: John Russell Pope. Engineer: Clyde R. Place.

Lowenstein's Store, Memphis, Tenn. Consulting Engineer: Charles

S. Leopold. Contractor: York Ice Machinery Co.



Tribune Tower, Chicago (Grilles in Office, CHICAGO TRIBUNE). Architects: J. D. Mead Howells and Raymond M. Hood. Contractor: Hegeman-Harris Company. Air Conditioning Contractor: Kroeschell Engineering Co. (Photograph by Chicago Architectural Photographing Company.)



Upjohn Company, Kalamazoo, Mich. Architects & Engineers: Albert Kahn. In Detroit, Mich. Sheet Metal Contractor: The J. A. Temple Co., Kalamazoo, Mich.



Sears, Roebuck and Co., Englewood Store, Chicago. Architects: Nimmons Carr Wright. Consulting Engineer: M. Schwab. Air Conditioning Engineer: M. Harbula. Contractor: Haines Company. (Photograph by Chicago Architectural Photographing Company.)



Filene's Store (Wm. Filene's Sons Company) Boston, Mass. Engineer: Carrier Engineering Corp.



Jewel Tea Co., Inc., Barrington, Ill. Air Conditioning Engineer and Contractor: Kroeschell Engineering Co.